

Dr. F.H.C. Crick, F.R.S.,
Cavendish Laboratory,
CAMBRIDGE.

16th January, 1961.

Dear Francis,

Just a note to let you know that we have now obtained a fibre of poly-A which is predominantly in the B form which, if you remember, was the ^{last} protonated form. This was achieved by standing a fibre over ammonia for a few days, so this is cleared up now.

We have now also measured the density in a gradient and find it to be 1.58. If I remember correctly this was Alex's original value before he managed to meet the theoretical value half way with a revised value of 1.53. On calculating the density I get a value of 1.50 for the pure acid, 1.54 if there is a half a potassium atom per nucleotide and 1.58 for two potassium atoms per nucleotide. In view of the fact that Beers dialysed his preparation of poly-A against distilled water, I do not think he could have removed all the potassium. I, therefore, think there is now no anomaly about the density, and that the two strand structure is certain. Do you agree? I have used a value of 0.54 for the partial specific volume, having forgotten the value you gave me.

I now feel we have carried the problem far enough to warrant accurate model building and I should like to come up to do this with you some time. Do you foresee any time in the next few weeks when you could tear yourself away from protein synthesis to do this.

Yours,

A. Klug.

Continued...

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P.S. I discussed with David Davies the problem of whether Alex and Jim's photographs are the same as ours. I am sure now that they are. The two spots at 4.4 and 4.7 Å into which their third layer line can sometimes be resolved, corresponds ^{essentially} externally to reflections found in the ^{two} phase system we have. The equatorial reflections can also be squared with a superposition of our two phases. I therefore have little doubt that there is no separate 8-fold screw structure.

PPS Morgan & Byrne's structure